B1 CONT.

double-stranded polynucleotide greater than 25 nucleotides in length into the cell [comprising,] and thereby activating expression of a gene, or gene and gene product, or gene product that increases immune recognition gene, or gene and gene product, or gene product including MHC class I and class II genes or gene products, peptide processing genes or gene products consisting of TAP-1, TAP-2, a proteosome subunit, Class II regulatory genes and gene products consisting of HLA-DM and invariant chain, costimulatory molecules gene or gene products consisting of B7 costimulatory molecule, PKR, IFN-beta, MAP Kinase, NF-κB, JAK, and a STATs activation, wherein such activation is involved in antigen presentation, growth, and function of the cell, and [increasing] which increases the ability of a cell to present antigen to an immune cell.

B2 C2

46. (Amended once) A[n antigen presenting cell (APC) capable of increasing presentation of an] somatic mammalian cell with the enhanced ability to present antigen [by a mammalian cell derived from a host organism] to the immune system comprising;

(a) introducing [a] the double-stranded polynucleotide into the mammalian cell ex vivo, which improves the ability of the mammalian cell to present antigen; and

(b) [increasing the mammalian cell's ability to present antigen and forming an activated antigen presenting cell (APC); and]

[(c)] measuring [increases] an increase in expression of [at least one major histocompatibility complex (MHC) molecule in or on the activated APC, and of at least one non-MHC molecule involved in antigen presentation in or on the activated APC] MHC molecules or co-stimulatory molecules, or MHC molecules and co-stimulatory molecules involved in antigen presentation selected from the group consisting of TAP-1, TAP-2, a proteosome subunit, HLA-DM, invariant chain, CIITA, RFX5, B7 costimulatory molecule, PKR, IFN-beta, MAP Kinase, NF-κB, JAK, and a STAT.

B3 S46 C3

60. (Amended once) A method for treating [a mammalian disease] cancer, or an infectious disease caused by a virus, bacteria, yeast, protozoa, a disease caused by environmental injury or an autoimmune disease [which is] sensitive to immunotherapy which comprises:

(a) removing diseased cells from a mammal;

(b) introducing a sequence non-specific double-stranded polynucleotide ~~greater than~~ 25 nucleotides in length into the cells;

B3 CONT.

(c) [killing] treating ~~the~~ cells to prevent cell division but permits other metabolic activity; and

(d) immunizing the mammal with the an effective amount of the cells to prevent or alleviate the symptoms of the disease.

Sub C4 62. (~~Amended once~~) The method of claim [61] 60 wherein the method of treatment is used [as an adjuvant] to enhance other treatment methods.

Sub C5 74. (Amended once) A method for increasing presentation of antigen by a cell [derived from a host organism] comprising:

(a) introducing a sequence non-specific double-stranded polynucleotide greater than 25 nucleotides in length into the mammalian cell ex vivo, which causes the cell to have an increased ability to present antigen; and

(b) [increasing the mammalian cell's ability to present antigen and forming an activated antigen presenting cell (APC); and]

[(c)] measuring [increases] an increase in expression of [at least one major histocompatibility complex (MHC) molecule in or on the activated APC, and of at least one non-MHC molecule involved in antigen presentation in or on the activated APC] MHC molecules or co-stimulatory molecules, or MHC molecules and co-stimulatory molecules involved in antigen presentation selected from the group consisting of TAP-1, TAP-2, a proteosome subunit, HLA-DM, invariant chain, CIITA, RFX5, B7 costimulatory molecule, PKR, IFN-beta, MAP Kinase, NF-κB, JAK, and a STAT.

B4 B. New Claims

Please add new claims 76 to 80.

Sub C6 76. (New) A vaccine for treating cancer, atherosclerosis, ~~an~~ autoimmune disease, or an infectious disease ~~caused by~~ a virus, bacteria, yeast, protozoa, comprising a somatic mammalian cell with the enhanced ability to present antigen to the immune system comprising;

B4 CONT.

(a) introducing a sequence non-specific double-stranded polynucleotide greater than 25 nucleotides in length into the somatic mammalian cell ex vivo, which causes the cell to have an increased ability to present antigen;

(b) measuring an increase in expression of MHC molecules or co-stimulatory molecules involved in antigen presentation selected from the group consisting of TAP-1, TAP-2, a proteosome subunit, HLA-DM, invariant chain, CIITA, RFX5, B7 costimulatory molecule, PKR, IFN-beta, MAP Kinase, NF-κB, JAK, and a STAT; and

(c) preparing the mammalian cell for immunization.

77. (New) A method for treating cancer, artherosclerosis, an infectious disease caused by a virus, bacteria, yeast, protozoa, a disease caused by environmental injury or an autoimmune disease sensitive to immunotherapy which comprises:

(a) removing diseased cells from a mammal;

(b) increasing or decreasing the expression of antigen by the cell; and

(c) immunizing the mammal with the an effective amount of the cell to prevent or alleviate the symptoms of the disease.

78. (New) The method of Claim 77 wherein the method of treatment is used to enhance other treatment methods.

79. (New) The method of claim 78 wherein the treatment involves activation or maturation of dendritic cells or peripheral blood macrophages pulsed with antigen in the form of protein, peptide, mRNA encoding antigen, or DNA encoding antigen from tumor cells or from infectious organisms.

Sub C7

80. (New) The method of claim 78 wherein the treatment involves somatic cells and is coordinate with treatments with CpG residues used to enhance immune cell responsiveness.